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Education:

- Ph.D. in physical chemistry (2007), University of Waterloo, Canada, thesis supervised by Professor Peter Bernath on “High-resolution laboratory spectroscopy of transient metal-containing molecules”
- M.Sc. in optics (2003), East China Normal University, Shanghai, China, thesis supervised by Professor Yangqin Chen on “Study of hot bands of the $B^2\Sigma_u^+ - X^2\Sigma_g^+$ system of \mathbf{C}_2^- anion by optical-heterodyne magnetic-rotation enhanced velocity modulation spectroscopy”
- B.Eng. in optoelectronics (2000), East China Normal University, Shanghai, China

Professional Experience:

- Scientist at Jet Propulsion Laboratory, 2010-Present
- NASA postdoctoral scholar at Jet Propulsion Laboratory, 2008-2009
- Postdoctoral scholar, University of Waterloo, 2007
- Graduate research assistant, University of Waterloo, 2003-2007
- Graduate research assistant, East China Normal University, 2000-2003

Principle Investigator Experience:

- NASA/APRA (Astrophysics Research and Analysis), 2013-2015, “Study of NH₃ line intensities in the THz and Far-IR region”, \$365K
- JPL/R&TD Spontaneous Concept Task, 2013, “Development of a novel apparatus for simulating the interstellar medium”, \$30K

Honors and Awards:

- NASA Group Achievement Award to U.S. Herschel HIFI Instrument Team 2014
- Peer Reviewing Excellence (Elsevier and Journal of Molecular Spectroscopy) 2014
- Editorial Board: Journal of Molecular spectroscopy 2013-present
- Journal of Quantitative Spectroscopy and Radiative Transfer, Young Scientist Award 2010
- NASA Postdoctoral Program Fellowship at Jet Propulsion Laboratory 2008-2009
- University of Waterloo, Chemistry Department, F.W. Karasek Scholarship 2007
- Ontario Graduate Scholarship 2006-2007
- The University of Waterloo President’s Graduate Scholarship 2006-2007
- University of Waterloo, Chemistry Department, H.G. McLeod Scholarship 2006

- Chinese Government Award for Outstanding Self-Financed Students Abroad 2005
- East China Normal University, Excellent Postgraduate Student Scholarship 2001
- East China Normal University, Title of Excellent Graduate 2000
- East China Normal University, Excellent Student 1999
- East China Normal University, Award of Top Grade 1999

Peer-reviewed Publications:

1. **S. Yu**, X. Yang, B. Li, K. Kaniki, S. Wu, Y. Guo, Y. Liu and Y. Chen, “Study of hot bands of the $B^2\Sigma_u^+ - X^2\Sigma_g^+$ system of C_2^- anion”, Chinese Physics, 12 (2003) 745-749.
2. K. Kaniki, X. Yang, Y. Guo, **S. Yu**, B. Li, Y. Liu and Y. Chen, “Concentration modulation laser spectroscopy of the C_2 molecular Swan system”, Progress in Natural Science, 13 (2003) 736-739.
3. B. Li, X. Yang, Y. Guo, K. Kaniki, **S. Yu**, Y. Liu and Y. Chen, “Laser spectroscopy study of the (4, 0) and (5, 0) bands of the $d^3\Delta-a^3\Pi$ system of CO” (in Chinese), J. Optics, 24 (2004) 255-259.
4. A. Shayesteh, **S. Yu** and P.F. Bernath, “Infrared emission spectra and equilibrium structures of gaseous HgH_2 and HgD_2 ”, J. Phys. Chem. A 109 (2005) 10280-10286.
5. A. Shayesteh, **S. Yu** and P.F. Bernath, “Gaseous HgH_2 , CdH_2 , and ZnH_2 ”, Chem. Eur. J. 11 (2005) 4709-4712.
6. **S. Yu**, D. Fu, A. Shayesteh, I.E. Gordon, D.R.T. Appadoo and P.F. Bernath, “Infrared and near infrared emission spectra of SbH and SbD ”, J. Mol. Spectrosc. 229 (2005) 257-265.
7. **S. Yu**, A. Shayesteh, D. Fu and P.F. Bernath, “Infrared and near infrared emission spectra of TeH and TeD ”, J. Mol. Spectrosc. 230 (2005) 105-116.
8. **S. Yu**, A. Shayesteh, D. Fu and P.F. Bernath, “The vibration-rotation emission spectrum of gaseous HZnCl ”, J. Phys. Chem. A 109 (2005) 4092-4094.
9. **S. Yu**, A. Shayesteh and P.F. Bernath, “The vibration-rotation emission spectra of gaseous CdH_2 and CdD_2 ”, J. Chem. Phys. 122 (2005) 194301/1-194301/6.
10. **S. Yu**, A. Shayesteh, P.F. Bernath and J. Koput, “The vibration-rotation emission spectrum of hot BeF_2 ”, J. Chem. Phys. 123 (2005) 134303/1-134303/8.
11. **S. Yu**, I.E. Gordon, P.M. Sheridan and P.F. Bernath, “Infrared emission spectroscopy of the $A^4\Phi_i-X^4\Delta_i$ and $B^4\Pi_i-X^4\Delta_i$ transitions of CoS ”, J. Mol. Spectrosc. 236 (2006) 255-259.
12. **S. Yu**, J-G Wang, P.M. Sheridan, M.J. Dick and P.F. Bernath, “Laser spectroscopy of the $\tilde{A}^2\Pi - \tilde{X}^2\Sigma^+ 0_0^0$ and $\tilde{C}^2\Pi - \tilde{A}^2\Pi 0_0^0$ transitions of SrOD ”, J. Mol. Spectrosc. 240 (2006) 26-31.
13. M.J. Dick, P.M. Sheridan, J.-G. Wang, **S. Yu** and P.F. Bernath, “Optical-optical double resonance spectroscopy of the $\tilde{D}^2\Sigma^+ - \tilde{A}^2\Pi$ transition of CaOH ”, J. Mol. Spectrosc. 240 (2006) 238-243.
14. R.S. Ram, I. Gordon, T. Hirao, **S. Yu**, P.F. Bernath and B. Pinchemel, “Fourier transform emission spectroscopy of the $C^3\Delta - X^3\Phi$, $D^3\Delta - X^3\Phi$, $G^3\Phi - X^3\Phi$ and $G^3\Phi - C^3\Delta$ systems of CoCl ”, J. Mol. Spectrosc. 243 (2007) 69-77.
15. J.-G. Wang, M.J. Dick, P.M. Sheridan, **S. Yu** and P.F. Bernath, “Further spectroscopic investigations of the high energy electronic states of SrOH : The $\tilde{B}'^2\Sigma^+ - \tilde{A}^2\Pi 0_0^0$ and the $\tilde{D}^2\Sigma^+ - \tilde{A}^2\Pi 0_0^0$ transitions”, J. Mol. Spectrosc. 245 (2007) 26-33.

16. T. Hirao, **S. Yu** and T. Amano, “Submillimeter-wave spectroscopy of DCO⁺ in the excited vibrational states: Does the Stark effect cause anomalies in the (02²0) state?”, J. Chem. Phys. 127 (2007) 074301/1-074301/12.
17. T. Hirao, **S. Yu** and T. Amano, “Submillimeter observation of HCO⁺ in the excited vibrational states”, J. Mol. Spectrosc. 248 (2008) 26-40.
18. **S. Yu**, B.J. Drouin, J.C. Pearson and H.M. Pickett, “Terahertz spectroscopy and global analysis of H₃O⁺”, Astrophys. J. Suppl. Ser. 180 (2009) 119-124.
19. **S. Yu**, B.J. Drouin, J.C. Pearson, H.M. Pickett, V. Lattanzi and A. Walters “Terahertz spectroscopy and global analysis of the bending vibrations of acetylene ¹²C₂D₂”, Astrophys. J. 698 (2009) 2114-2120.
20. **S. Yu**, B.J. Drouin and J.C. Pearson, “Terahertz spectroscopy of the bending vibrations of acetylene ¹²C₂H₂”, Astrophys. J. 705 (2009) 786-790.
21. R.S. Ram, **S. Yu**, I. Gordon and P.F. Bernath, “Fourier transform infrared emission spectroscopy of new systems of NiS”, J. Mol. Spectrosc. 258 (2009) 20-25.
22. Z. Kisiel, L. Pszczolkowski, B.J. Drouin, C.S. Brauer, **S. Yu** and J.C. Pearson, “The rotational spectrum of acrylonitrile up to 1.67 THz”, J. Mol. Spectrosc. 258 (2009) 26-34.
23. C.S. Brauer, J.C. Pearson, B.J. Drouin, and **S. Yu**, “New ground state measurements of ethyl cyanide”, Astrophys. J. Suppl. Ser. 184 (2009) 133-137.
24. B.J. Drouin, **S. Yu**, J.C. Pearson and H.S.P. Muller, “High resolution spectroscopy of ¹²CH₃D and ¹³CH₃D”, J. Quant. Spectrosc. & Radiative Transfer 110 (2009) 2077-2081.
25. **S. Yu**, J. C. Pearson, B. J. Drouin, K. Sung, O. Pirali, M. Vervloet, M.-A. Martin-Drumel, C. P. Endres, T. Shiraishi, K. Kobayashi, and F. Matsushima, “Submillimeter-wave and far-infrared spectroscopy of high-*J* transitions of the ground and ν₂=1 states of ammonia”, J. Chem. Phys. (2010) 174317/1-174317/14.
26. B. J. Drouin, **S. Yu**, C. E. Miller, H. S.P. Muller, F. Lewen, S. Brunken, H. Habara, “Terahertz spectroscopy of oxygen, O₂, in its ³Σ_g⁻ and ¹Δ electronic states”, J. Quant. Spectrosc. & Radiative Transfer 111 (2010), 1167–1173.
- 27 H. Gupta, P. Rimmer, J. C. Pearson, **S. Yu**, E. Herbst, N. Harada, E. A. Bergin, D. A. Neufeld, G. J. Melnick, R. Bachiller, W. Baechtold, T. A. Bell, G. A. Blake, E. Caux, C. Ceccarelli, J. Cernicharo, G. Chattopadhyay, C. Comito, S. Cabrit, N. R. Crockett, F. Daniel, E. Falgarone, M. C. Diez-Gonzalez, M.-L. Dubernet, N. Erickson, M. Emprechtinger, P. Encrenaz, M. Gerin, J. J. Gill, T. F. Giesen, J. R. Goicoechea, P. F. Goldsmith, C. Joblin, D. Johnstone, W. D. Langer, B. Larsson, W. B. Latter, R. H. Lin, D. C. Lis, R. Liseau, S. D. Lord, F. W. Maiwald, S. Maret, P. G. Martin, J. Martin-Pintado, K. M. Menten, P. Morris, H. S. P. Müller, J. A. Murphy, L. H. Nordh, M. Olberg, V. Ossenkopf, L. Pagani, M. Péault, T. G. Phillips, R. Plume, S.-L. Qin, M. Salez, L. A. Samoska, P. Schilke, E. Schlecht, S. Schlemmer, R. Szczera, J. Stutzki, N. Trappe, F. F. S. van der Tak, C. Vastel, S. Wang, H. W. Yorke, J. Zmuidzinas, A. Boogert, R. Güsten, P. Hartogh, N. Honingh, A. Karpov, J. Kooi, J.-M. Krieg, R. Schieder, and P. Zaal, “Detection of OH⁺ and H₂O⁺ towards Orion KL”, Astron. & Astrophys. 521 (2010) L47.
28. D. A. Neufeld, J. R. Goicoechea, P. Sonnentrucker, J. H. Black, J. Pearson, **S. Yu**, T. G. Phillips, D. C. Lis, M. De Luca, E. Herbst, P. Rimmer, M. Gerin, T. A. Bell, F. Boulanger, J. Cernicharo, A. Coutens, E. Dartois, M. Kazmierczak, P. Encrenaz, E. Falgarone, T. R. Geballe, T. Giesen, B. Godard, P. F. Goldsmith, C. Gry, H. Gupta, P. Hennebelle, P. Hily-Blant, C. Joblin, R. Kołos, J. Krełowski, J. Mart'ın-Pintado, K. M. Menten, R. Monje, B. Mookerjea, M. Perault, C. Persson, R. Plume, M. Salez, S. Schlemmer, M. Schmidt, J. Stutzki, D. Teyssier, C. Vastel, A. Cros, K. Klein, A. Lorenzani, S. Philipp, L. A. Samoska, R. Shipman, A. G. G. M. Tielens, R. Szczera and J. Zmuidzinas, “Herschel/HIFI observations of interstellar OH⁺ and H₂O⁺ towards W49N: a probe of diffuse clouds with a small molecular fraction”, Astron. & Astrophys. 521 (2010) L10.

29. D. A. Neufeld, P. Sonnentrucker , T. G. Phillips, D. C. Lis, M. De Luca, J. R. Goicoechea, J. H. Black, M. Gerin, T. Bell, F. Boulanger, J. Cernicharo, A. Coutens, E. Dartois, M. Kazmierczak, P. Encrenaz, E. Falgarone, T. R. Geballe, T. Giesen, B. Godard, P. F. Goldsmith, C. Gry, H. Gupta, P. Hennebelle, E. Herbst, P. Hily-Blant, C. Joblin, R. Kołos, J. Krełowski, J. Martín-Pintado, K. M. Menten, R. Monje, B. Mookerjea, J. Pearson, M. Perault, C. Persson, R. Plume, M. Salez, S. Schlemmer, M. Schmidt, J. Stutzki, D. Teyssier, C. Vastel, **S. Yu**, P. Cais, E. Caux, R. Liseau, P. Morris, and P. Planesas, “Strong absorption by interstellar hydrogen fluoride: Herschel/HIFI observations of the sight-line to G10.6–0.4 (W31C)”, *Astron. & Astrophys.* 518 (2010) L108.
30. T. G. Phillips, E. A. Bergin, D. C. Lis, D. A. Neufeld, T. A. Bell, S. Wang, N. R. Crockett, M. Emprechtinger, G. A. Blake, E. Caux, C. Ceccarelli, J. Cernicharo, C. Comito, F. Daniel, M.-L. Dubernet, P. Encrenaz, M. Gerin, T. F. Giesen, J. R. Goicoechea, P. F. Goldsmith, E. Herbst, C. Joblin, D. Johnstone , W. D. Langer, W. D. Latter, S. D. Lord, S. Maret, P. G. Martin, G. J. Melnick, K. M. Menten, P. Morris, H. S. P. Müller, J. A. Murphy, V. Ossenkopf, J. C. Pearson, M. Péault, R. Plume, S.-L. Qin, P. Schilke, S. Schlemmer, J. Stutzki, N. Trappe, F. F. S. van der Tak, C. Vastel, H. W. Yorke, **S. Yu**, J. Zmuidzinas, A. Boogert, R. Güsten, P. Hartogh, N. Honingh, A. Karpov1, J. Kooi, J.-M. Krieg, and R. Schieder, “Herschel observations of EXtra-Ordinary Sources (HEXOS): Detection of hydrogen fluoride in absorption towards Orion KL”, *Astron. & Astrophys.* 518 (2010) L109.
31. P. Sonnentrucker, D. A. Neufeld, T. G. Phillips, M. Gerin, D. C. Lis, M. De Luca, J. R. Goicoechea, J. H. Black, T.A. Bell, F. Boulanger, J. Cernicharo, A. Coutens, E. Dartois, M. Ka'zmierczak, P. Encrenaz, E. Falgarone, T. R. Geballe, T. Giesen, B. Godard, P. F. Goldsmith, C. Gry, H. Gupta, P. Hennebelle, E. Herbst, P. Hily-Blant, C. Joblin, R. Kołos, J. Krełowski, J. Martín-Pintado, K. M. Menten, R. Monje, B. Mookerjea, J. Pearson, M. Perault, C. M. Persson, R. Plume, M. Salez, S. Schlemmer, M. Schmidt, J. Stutzki, D. Teyssier, C. Vastel, **S. Yu**, E. Caux, R. Güsten, W. A. Hatch, T. Klein, I. Mehdi, P. Morris, and J. S. Ward, “Detection of hydrogen fluoride absorption in diffuse molecular clouds with Herschel/HIFI: an ubiquitous tracer of molecular gas”, *Astron. & Astrophys.* 521 (2010) L12.
32. M. Gerin, M. De Luca, J. R. Goicoechea, E. Herbst, E. Falgarone, B. Godard, T. A. Bell, A. Coutens, M. Ka'zmierczak, P. Sonnentrucker, J. H. Black, D. A. Neufeld, T. G. Phillips, J. Pearson, P. B. Rimmer, G. Hassel, D. C. Lis, C. Vastel, F. Boulanger, J. Cernicharo, E. Dartois, P. Encrenaz, T. Giesen, P. F. Goldsmith, H. Gupta, C. Gry, P. Hennebelle, P. Hily-Blant, C. Joblin, R. Kołos, J. Krełowski, J. Martín-Pintado, R. Monje, B. Mookerjea, M. Perault, C. Persson, R. Plume, M. Salez, M. Schmidt, J. Stutzki, D. Teyssier, **S. Yu**, A. Contursi, K. Menten, T. R. Geballe, S. Schlemmer, P. Morris, W. A. Hatch, M. Imram, J. S. Ward, E. Caux, R. Güsten, T. Klein, P. Roelfsema, P. Dieleman, R. Schieder, N. Honingh, and J. Zmuidzinas, “Interstellar CH absorption in the diffuse interstellar medium along the sight-lines to G10.6–0.4 (W31C), W49N, and W51”, *Astron. & Astrophys.* 521 (2010) L16.
33. S.-L. Qin, P. Schilke, C. Comito, T. Möller, R. Rolffs, H. S. P. Müller, A. Belloche, K. M. Menten, D. C. Lis, T. G. Phillips, E. A. Bergin, T. A. Bell, N. R. Crockett, G. A. Blake, S. Cabrit, E. Caux, C. Ceccarelli, J. Cernicharo, F. Daniel, M.-L. Dubernet, M. Emprechtinger, P. Encrenaz, E. Falgarone, M. Gerin, T. F. Giesen, J. R. Goicoechea, P. F. Goldsmith, H. Gupta, E. Herbst, C. Joblin, D. Johnstone, W. D. Langer, S. D. Lord, S. Maret, P. G. Martin, G. J. Melnick, P. Morris, J. A. Murphy, D. A. Neufeld, V. Ossenkopf, L. Pagani, J. C. Pearson, M. Péault, R. Plume, M. Salez, S. Schlemmer, J. Stutzki, N. Trappe, F. F. S. van der Tak, C. Vastel, S. Wang4 H. W. Yorke, **S. Yu**, J. Zmuidzinas, A. Boogert, R. Güsten, P. Hartogh, N. Honingh, A. Karpov, J. Kooi, J.-M. Krieg, R. Schieder, M. C. Diez-Gonzalez, R. Bachiller, J. Martín-Pintado, W. Baechtold, M. Olberg, L. H. Nordh, J. L. Gill, and G. Chattopadhyay, “Herschel observations of EXtra-Ordinary Sources (HEXOS): detecting spiral arm clouds by CH absorption lines”, *Astron. & Astrophys.* 521 (2010) L14.
34. E. Falgarone, B. Godard, J. Cernicharo, M. De Luca, M. Gerin, T. G. Phillips, J. H. Black, D. C. Lis, T. A. Bell, F. Boulanger, A. Coutens, E. Dartois, P. Encrenaz, T. Giesen, J. R. Goicoechea, P. F. Goldsmith, H. Gupta, C. Gry, P. Hennebelle, E. Herbst, P. Hily-Blant, C. Joblin, M. Ka'zmierczak, R. Kołos, J. Krełowski, J. Martín-Pintado, R. Monje, B. Mookerjea, D. A. Neufeld, M. Perault, J. C. Pearson, C. Persson, R. Plume,

- M. Salez, M. Schmidt, P. Sonnentrucker, J. Stutzki, D. Teyssier, C. Vastel, **S. Yu**, K. Menten, T. R. Geballe, S. Schlemmer, R. Shipman, A. G. G. M. Tielens, S. Philipp, A. Cros, J. Zmuidzinas, L. A. Samoska, K. Klein, A. Lorenzani, R. Szczera, I. Péron, P. Cais, P. Gaufre, A. Cros, L. Ravera, P. Morris, S. Lord, and P. Planesas, “CH⁺(1–0) and ¹³CH⁺(1–0) absorption lines in the direction of massive star-forming regions”, *Astron. & Astrophys.* 521 (2010) L15.
35. B. Mookerjea, T. Giesen, J. Stutzki, J. Cernicharo, J. R. Goicoechea, M. De Luca, T. A. Bell, H. Gupta, M. Gerin, C. M. Persson, P. Sonnentrucker, Z. Makai, J. Black, F. Boulanger, A. Coutens, E. Dartois, P. Encrenaz, E. Falgarone, T. Geballe, B. Godard, P. F. Goldsmith, C. Gry, P. Hennebelle, E. Herbst, P. Hily-Blant, C. Joblin, M. Ka’zmierzak, R. Kołos, J. Krełowski, D. C. Lis, J. Martin-Pintado, K. M. Menten, R. Monje, J. C. Pearson, M. Perault, T. G. Phillips, R. Plume, M. Salez, S. Schlemmer, M. Schmidt, D. Teyssier, C. Vastel, **S. Yu**, P. Dieleman, R. Güsten, C. E. Honingh, P. Morris, P. Roelfsema, R. Schieder, A. G. G. M. Tielens, and J. Zmuidzinas, “Excitation and abundance of C₃ in star forming cores Herschel/HIFI observations of the sight-lines to W31C and W49N”, *Astron. & Astrophys.* 521 (2010) L13.
36. N. R. Crockett, E.A. Bergin, S. Wang, D. C. Lis, T. A. Bell, G. A. Blake, A. Boogert, B. Bumble, S. Cabrit, E. Caux, C. Ceccarelli, J. Cernicharo, C. Comito, F. Daniel, M.-L. Dubernet, M. Emprechtinger, P. Encrenaz, E. Falgarone, M. Gerin, T. F. Giesen, J. R. Goicoechea, P. F. Goldsmith, H. Gupta, R. Güsten, P. Hartogh, F. Helmich, E. Herbst, N. Honingh, C. Joblin, D. Johnstone, A. Karpov, J. H. Kawamura, J. Kooi, J.-M. Krieg, W. D. Langer, W. D. Latter, S. D. Lord, S. Maret, P. G. Martin, G. J. Melnick, K. M. Menten, P. Morris, H. S. P. Müller, J. A. Murphy, D. A. Neufeld, V. Ossenkopf, J. C. Pearson, M. Péault, T. G. Phillips, R. Plume, S.-L. Qin, P. Roelfsema, R. Schieder, P. Schilke, S. Schlemmer, J. Stutzki, F. F. S. van der Tak, A. Tielens, N. Trappe, C. Vastel, H.W. Yorke, **S. Yu**, and J. Zmuidzinas, “Herschel observations of EXtra-Ordinary Sources (HEXOS): The terahertz spectrum of Orion KL seen at high spectral resolution”, *Astron. & Astrophys.* 521 (2010) L21.
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Poster

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